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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,863	09/30/2003	David Alexander Russell	WEAT/0275	1881
36735	7590	11/16/2006	EXAMINER	
PATTERSON & SHERIDAN, L.L.P. 3040 POST OAK BOULEVARD, SUITE 1500 HOUSTON, TX 77056			BELLAMY, TAMIKO D	
			ART UNIT	PAPER NUMBER
			2856	

DATE MAILED: 11/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/675,863	Applicant(s) RUSSELL ET AL.	
	Examiner Tamiko D. Bellamy	Art Unit 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-16,31 and 33-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-16, 31, and 33-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

- a. A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
2. Claims 1-3, and 5-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fraser (3,517,546).

Re claim 1, as depicted in fig. 1, Fraser discloses generating an interaction between the pipeline pig (e.g., pig housing 12) and the inner diameter of a pipeline (10). Fraser discloses generating data representative of an acoustical characteristic of the pipeline (Col. 4, lines 2-22). As depicted in fig. 2, Fraser discloses selecting a seal diameter (e.g., scrapper cups 13) and seal thickness to generate from the interaction between the pipeline pig (e.g. pig housing 12) and the inner diameter of the pipeline (Col. 2, lines 63-72). Fraser discloses vibration frequency data characteristic of the internal condition of the pipeline (Col. 2, lines 10-34). While, Fraser does not specifically disclose a pig guide diameter, Fraser discloses a seal diameter (e.g., scrapper cups 13), which functions as a combination of a seal and a guide. Official notice is taken wherein it is well known in the art to use a pig guide. Therefore to employ Fraser on a selecting a pig guide diameter would have been obvious to one having ordinary skill in the art at the time of the invention since the reference explicitly teaches the use of a pipeline pig for

determining a condition of a pipeline including a selecting a seal diameter, which generates vibration and guides the pig through a pipeline.

Re claim 2, Fraser discloses the acoustical characteristic is vibration frequency (Col. 3, lines 20-21).

Re claim 3, Fraser discloses the acoustical characteristic is vibration amplitude (Col. 3, lines 20-21).

Re claim 5, Fraser discloses controlling the speed of travel of the pipeline pig (12) (Col. 3, lines 11-15).

Re claim 6, Fraser discloses determining the speed of travel of the pipeline pig (12) (Col. 3, lines 11-15).

Re claim 7, Fraser discloses determining the position of the pipeline pig (Col. 3, lines 8-10).

Re claim 8, Fraser discloses filtering the data (Col. 4, line 15).

Re claim 9, Fraser discloses first and second sensors (e.g., hydrophones 15, 14) encountering a physical condition in the pipeline.

Re claim 10, Fraser discloses determining a condition correlating two frequency data representative of the pig position and the speed of travel of the pig along the pipeline (Col. 3, lines 8-15; Col. 4, lines 6-13).

Re claim 11, Fraser discloses removing frequency responses resulting from the pig passing known structures in the pipeline (10) (Col. 4, lines 2-16).

Re claim 12, Fraser discloses the known structures include joints and bends (Col. 2, lines 38-42).

Re claims 13 and 14, Fraser discloses identifying known patterns (Col. 4, lines 2-16).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 15, 16, 31, 33-37, and 41 are rejected under 35 U.S.C. 102(b) as being anticipated by Fraser (3,517,546).

Re claim 15, as depicted in fig. 1, Fraser discloses passing a pig (12) axially through the pipeline. Fraser discloses sensing the frequency response generated in the pipeline and analyzing the data representative of a condition of the pipeline (10) (Col. 3, lines 18-21).

Re claim 16, Fraser discloses the sensors (e.g., hydrophones 15, 14) are coupled to a band pass amplifier (20, 21), which pass frequencies above 30,000 Hz and rejects frequencies below this level. The band pass amplifier is a type of analyzer. Although the analyzer (e.g., band pass amplifier 20, 21) rejects frequencies below 30,000 Hz, the frequencies between 75 to 300 Hz are still analyzed.

Re claim 31, as depicted in fig. 1, Fraser discloses interfacing a portion of the pig (12) with the inner surface of the pipeline (10). Fraser discloses a seal (e.g., scrapper cups 13), which inherently induces a vibration in a portion of the pipeline pig (12) as the

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pig moves through the pipeline (10). Fraser discloses that the sensors (e.g., hydrophones 15, 14) detect all noises that occur in the pipeline. The detection of noise is equivalent to sensing the vibration.

Re claim 33, Fraser discloses determining a condition correlating two frequency data representative of the pig position and the speed of travel of the pig along the pipeline (Col. 3, lines 8-15; Col. 4, lines 6-13).

Re claim 34, Fraser discloses identifying known patterns (Col. 4, lines 2-16).

Re claim 35, Fraser discloses sensing vibration frequency (Col. 3, lines 20-21).

Re claim 36, Fraser discloses sensing vibration amplitude (Col. 3, lines 20-21).

Re claim 37, Fraser discloses controlling the speed of travel of the pipeline pig (12) (Col. 3, lines 11-15).

Re claim 41, as depicted in fig. 1, Fraser discloses recording all noise as the pig (12) travels through the pipeline (10) Col. 4, lines 2-3). **The detected noise is equivalent to noises related to conditions (e.g., debris, corrosion, etc.) of the pipeline as well.** As depicted in fig. 1, the pig (12) itself do not physically interact with the debris.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 38 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fraser (3,517,546) in view of Marsh et al. (4,541,278).

Re claim 39, Fraser specifically states (Col. 4, lines 2-3) that the pig **detects all noise that occurs in the pipeline. This teaching clearly infers and/or suggests detecting noises related to conditions (e.g., debris, corrosion, etc.) of the pipeline as well. Fraser does not specifically disclose** the data is indicative of the roughness of the pipeline. Marsh et al. discloses sensing fingers made of any material capable of transmitting the vibrations from the point of contact of the fingers and the interior walls of the pipeline (Col. 3, lines 30-37). Marsh et al. also discloses a microphone (31) transmits an acoustical signal to a recorder. Marsh et al. discloses that an increase in volume of an audio signal is indicative of detecting corrosion, deposits, or roughness on the interior pipeline walls (Col. 3, lines 50-68). Therefore, to modify Fraser by employing data indicative of inside surface roughness of the pipe would have been obvious to one of ordinary skill in the art at the time of the invention since Marsh et al. teaches a pipeline corrosion sensing device having these design characteristics. The skilled artisan would be motivated to combine the teachings of Fraser and Marsh et al. since Fraser states that his invention is applicable to detecting a condition of a pipeline and Marsh et al. is only used to provide the added limitation of data such as recorded noise which indicates a representation of corrosion, roughness, or deposits within a pipeline.

Re claim 43, specifically states (Col. 4, lines 2-3) that the pig **detects all noise that occurs in the pipeline. This teaching clearly infers and/or suggests detecting noises related to conditions (e.g., debris, corrosion, etc.) of the pipeline as well. Fraser does not specifically disclose recognizing patterns within the frequency**

range. Marsh et al. discloses recognizing patterns of noise (Col. 4, lines 27-45).

Therefore, to modify Fraser by employing recognizing patterns within the frequency range would have been obvious to one of ordinary skill in the art at the time of the invention since Marsh et al. teaches a pipeline corrosion sensing device having these design characteristics. The skilled artisan would be motivated to combine the teachings of Fraser and Marsh et al. since Fraser states that his invention is applicable to detecting a condition of a pipeline and Marsh et al. is only used to provide the added limitation data recognizing patterns to determine a condition of a pipeline.

7. Claims 39 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fraser (3,517,546) in view of Lara (4,747,317).

Re claim 39, Fraser discloses a power supply (Col. 3, lines 57-59). Fraser does not specifically disclose the pig having on-board memory and a processor. As depicted in figs. 1, and 4, Lara discloses a pig having a processor (76) and memory (74)(Col. 9, lines 10-14). Therefore, to modify Fraser by employing memory and a processor would have been obvious to one of ordinary skill in the art at the time of the invention since Lara teaches a pipeline pig having these design characteristics. The skilled artisan would be motivated to combine the teachings of Fraser and Lara since Fraser states that his invention is applicable to inspecting a condition of a pipeline and Lara is only used to provide the added limitation of providing the pig with memory and a processor, which are used to determine a condition of a pipeline.

Re claim 40, Fraser discloses sensors (14, 15). Fraser does not specifically disclose the pig having one or more of the following sensors: temperature sensor,

pressure sensor, or a gyroscope. As depicted in figs. 1, and 4, Lara discloses a pig having gyroscope, temperature sensor (74)(Col. 9, lines 4). Therefore, to modify Fraser by employing a gyroscope would have been obvious to one of ordinary skill in the art at the time of the invention since Lara teaches a pipeline pig having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Fraser and Lara since Fraser states that his invention is applicable to inspecting a condition of a pipeline and Lara is only used to provide the added limitation of providing the pig with a gyroscope, which are used to determine a condition of a pipeline.

8. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fraser (3,517,546) in view of Savard (2003/0056309).

Re claim 42, as depicted in fig. 1, Fraser discloses a seal (e.g., scrapper cups 13) having a predetermined diameter. Fraser lacks the detail of the seal diameter that is greater than the internal diameter of the pipeline. As depicted in figs. 2-4, Savard discloses a seal (e.g., combination of cup base (22) and rim lip (38)). Savard discloses that the rim lip (38) has a larger diameter than of the cup base (22). Savard also discloses that cup base (22) has a diameter that is selected to be as close as possible to the inside diameter of the pipe (4) (Pg. 2, pars. 23-25). Therefore when the seal (e.g., combination of cup base (22) and rim lip (38)) has a diameter larger than internal diameter of the pipe (4). Therefore, to modify Fraser by employing a seal with a larger diameter would have been obvious to one of ordinary skill in the art at the time of the invention since Savard teaches a pipeline pig having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Fraser and Savard since Fraser states that his

invention is applicable to inspecting a condition of a pipeline and Savard is only used to provide the added limitation of providing the pig seal having a larger diameter than the internal diameter of the pipe.

Response to Arguments

9. Applicant's arguments filed 9/5/06 have been fully considered but they are not persuasive.

Re claim 1-3, and 5-14, the applicant argues that the device of pipeline pig of Fraser generates travel noise, which does not constitute data representative of an acoustic characteristic of the pipeline. However, Fraser specifically states (Col. 4, lines 2-3) that **the pig detects all noise that occurs in the pipeline. This teaching clearly infers and/or suggests detecting noises related to conditions (e.g., debris, corrosion, etc.) of the pipeline as well.**

Re claim 16, the applicant argues that Fraser does not analyze data at a frequency range between 7z Hz to 300 Hz. Fraser discloses the sensors (e.g., hydrophones 15, 14) are coupled to a band pass amplifier (20, 21), which pass frequencies above 30,000 Hz and rejects frequencies below this level. The band pass amplifier is a type of analyzer. Although the analyzer (e.g., band pass amplifier 20, 21) rejects frequencies below 30,000 Hz, the frequencies between 75 to 300 Hz are still analyzed.

Re claim 31, the applicant argues that Fraser does not teach using the vibration to infer a condition of the pipeline. However, Fraser specifically states (Col. 4, lines 2-3) that **the pig detects all noise that occurs in the pipeline. This teaching clearly infers**

and/or suggests detecting noises related to conditions (e.g., debris, corrosion, etc.) of the pipeline as well.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tamiko D. Bellamy whose telephone number is (571) 272-2190. The examiner can normally be reached on Monday - Friday 7:30 AM to 3:30 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tamiko Bellamy

T.B.
November 11, 2006


HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800